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Opportunities Before Students of Agricultural Colleges

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OPPORTUNITIES BEFORE STUDENTS OF AGRICULTURAL COLLEGES*

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*Address delivered before the resident teaching section of the Association of Land-Grant Colleges and Universities, Chicago, Ill., November 15, 1927.

OPPORTUNITIES BEFORE STUDENTS OF AGRICULTURAL COLLEGES

Introduction

A leader in land-grant college education once said "Every properly educated man is trained both vocationally and liberally. Every man to be efficient needs the vocational; to be happy and safe he needs the other."

The agricultural curricula of land-grant institutions offer opportunity for study in a wide range of subjects. These courses are organized to give vocational training in agricultural and closely related science subjects along with the humanities, such as English, history, economics, and sociology. The courses have vocational objectives but not in any restrictive sense. They seek to combine the technical with the liberal in education. The vocational concept is not confined to any one particular kind of activity. Higher education in agriculture is formulated on the idea that the liberal and vocational elements should be coordinated so that students pursuing the agricultural courses may have opportunity to obtain training that prepares them for useful employment in a large number of professions and occupations. Obviously, the success of these graduates will depend upon their interest in their callings, the thoroughness of their training, and their capacity and determination to utilize to the fullest extent the information and training acquired.

Much has been said in recent years about the aims or objectives of college courses in agriculture. Some of the administrators and teachers of these institution believe that special studies should be undertaken to determine the aims of the agricultural college curricula. The colleges differ among themselves as to what these aims should be. Some believe that the principal aim of the agricultural college course is to train practical scientific farmers. Others claim that the primary function of such a course is to train for the professions and leadership in the various fields related directly and indirectly to agriculture. These differences of opinion may be due to the great variety of subjects that comprise the curricula as well as to the wide range of occupations and professions in which former agricultural students are entering. It is not the purpose of this discussion to define the objectives of these curricula or to indicate the procedure to follow in their attainment. It aims to show the pursuits in which graduates of agricultural colleges are rendering service and some opportunities for useful employment and reward in certain agricultural callings.

If it is assumed that the programs of our agricultural colleges have been functioning with at least a fair degree of success, it seems obvious that the lines of pursuits in which former agricultural students are selecting professions or occupations should have considerable weight in determining the aims or objectives of these courses. The data used in this study show conclusively that the objectives should not be restricted to one or two kinds of pursuits if the majority of those interested in agricultural education are to be served. Such a

restricted program would inevitably result in loss of funds, time, and energy by the States supporting these institutions as well as by the students pursuing the courses. There should be as many objectives in the course as are necessary to cover the major pursuits in which the majority of agricultural college students are selecting careers. If higher education in agriculture is to function effectively there are certain aims that must have first consideration. The first responsibility of these institutions is to determine the objectives, and then to define the conditions that must be met in order to attain them.

As a basis for determing what are some of the opportunities before students who desire to prepare themselves for service in agricultural pursuits the deans of agricultural colleges were requested to submit any available data showing the kinds of professions or occupations in which graduates and other students of agriculture are now employed. Replies were received from 41 of the deans, 19 of whom submitted data giving detailed information as to the pursuits of these students. The figures appear to relate to graduates in agriculture and therefore omit other agricultural students who did not complete their courses. The data as a whole related to the period extending over the last decade. The information was assembled and classified on the basis of the various lines of work in which agricultural college graduates are now engaged. This discussion therefore is concerned (1) with percentage of agricultural graduates engaged in (a) scientific farming, (b) research work, (c) teaching and extension work, (d) business related to agriculture, and (e) miscellaneous pursuits; (2) with the present demand for college trained men in these pursuits; and (3) with the opportunities offered for services and reward in these pursuits.

The following tabulation shows the percentage of agricultural graduates now engaged in the various pursuits, classified as definitely as the data would permit.

Pursuits in Which Agricultural Graduates Are Engaged

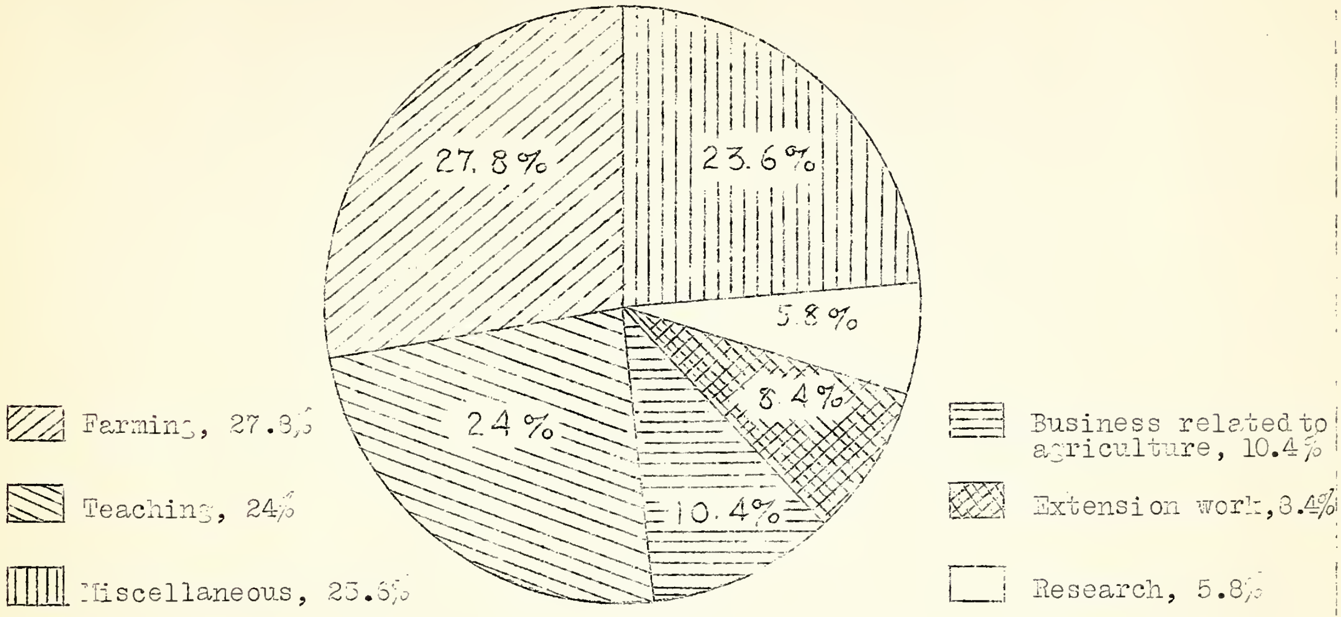
State	Farming %	Research %	Teaching %	Extension work %	Business related to agriculture %	Miscel-laneous %
Fla.	8	12	32	10	12	26
Ga.	18	2	28	26	7	19
Ind.	35	--	*36	--	14	15
Kans.	50	--	*36	--	--	14
Md.	30	--	21	9	18	22
Mass.	21	7	12	3	16	41
Mich.	28	5	18	6	18	25
Minn.	19	--	**54	13	4	10
Miss.	19	4	17	14	--	46
Mont.	24	8	23	5	15	25
Nev.	27	6	17	13	10	27
N. H.	39	--	20	--	21	20
N. J.	22	8	21	10	--	39
N. Y.	34	--	*36	--	16	14
N. C.	30	7	37	8	10	8
Pa.	29	7	18	15	--	31
R. I.	30	6	30	4	--	30
Tex.	32	5	18	4	24	17
Wash.	31	--	31	5	13	20
Average	27.8	5.8	24	8.4	10.4	23.6

*Research, teaching, and extension work combined.
**Research and teaching combined.

These figures reveal that a relatively high percentage of agricultural graduates entered upon scientific farming, the range varying from 8 per cent in Florida to 50 per cent in Kansas. The number engaged in research work varied from 2 per cent in Georgia to 12 per cent in Florida. The number engaged in teaching varied from 12 per cent in Massachusetts to 37 per cent in North Carolina. The number engaged in extension work varied from 3 per cent in Massachusetts to 26 per cent in Georgia. The number engaged in business related to agriculture varied from 4 per cent in Minnesota to 24 per cent in Texas. The number in the miscellaneous group varied from 8 per cent in North Carolina to 46 per cent in Mississippi.

The following graph shows the approximate percentage of the agricultural college graduates who entered into the various occupations or professions.

Approximate Percentage of Agricultural College Graduates
Who Entered into Various Occupations or Professions



These data show that about 27.8 per cent of the agricultural graduates are engaged in farming, 24 per cent in teaching, 6 per cent in research, 8.4 per cent in extension work, 10.4 per cent in business related to agriculture, and 23.6 in miscellaneous pursuits. It is encouraging to note that the total average in percentage of graduates who are either farming or in business related to farming or in professional agriculture, such as teaching, research, or extension, is approximately 78 per cent. The data thus indicate that more than three-fourths of these graduates engage in occupations for which their technical training in agriculture and the related sciences definitely prepared them.

Scientific Farming

These data show that the criticisms sometimes made against the land-grant colleges that their graduates do not return to the farm is without foundation. It is true that all these graduates do not return to the farm. But should this be considered a reflection on the work of these institutions? The fact that these curricula are sufficiently broad to prepare students for services in a variety of pursuits is commendable. The rapid agricultural development during the past quarter of a century has created a demand for the services of men trained in agriculture. This phenomenal development could not have been possible if a considerable number of these agricultural graduates had not chosen to enter careers in research, extension, and resident teaching, and other professions.

The farm as a business enterprise offers numerous opportunities for the utilization of agricultural information, but apparently it does not offer sufficient inducement to satisfy the ambitions of all who have had college training in agriculture. It is natural, therefore, to expect that many such students would choose to enter professions and occupations other than that of farming.

As might be expected under such circumstances the agricultural colleges and other institutions have been criticized for educating young men away from the farm rather than back to the farm. No doubt this condition is more or less true in view of the fact that the rapid development of the industries throughout the country has opened the door of opportunity to many more students trained in agriculture. Furthermore, keen competition has developed between agriculture on the one side and commercial and industrial concerns on the other for the services of the ambitious and capable youth of the country who have received training in land-grant colleges. Unquestionably, one of the greatest needs on the farm to-day is a larger number of young men trained in the science and art of agriculture engaged in the business of scientific farming. Such a condition can not be hoped for unless agriculture as a business offers a reward commensurate with other lines of pursuits. Even then it would be hardly possible to offer opportunity on the farm to satisfy the ambitions of all agricultural trained men.

Data from certain States show that at one time or another a rather large percentage of agricultural college graduates engaged in farming. A report from the College of Agriculture of the University of Minnesota, St. Paul, giving results of a questionnaire sent to 800 graduates and former students, to which 177 replies were received, states that 42 per cent have been and 19 per cent are now engaged in actual farming; 60 per cent have been and 57 per cent are now engaged in college teaching, investigational or other technical work; 27 per cent have been and 15 per cent are now engaged in agricultural extension work; and 42 per cent have been and 17 per cent are now teachers of agriculture, presumably below college grade.

The College of Agriculture of the University of Illinois, Urbana reports that a survey was made of former agricultural students previous to the year 1922 and including it, to which replies were received from 1,520 graduates, which indicate that from 35 to 40 per cent are residing on Illinois farms, and that from 35 to 40 per cent more are engaged in occupations for which their technical training in agriculture and related industries especially trained them.

A study of the enrollment in land-grant colleges during the last decade indicates a rather notable decrease in the number of students pursuing agricultural courses. There were 14,348 students in 1917; 10,888 in 1918; 10,345 in 1919; 15,370 in 1920; 15,166 in 1921; 13,921 in 1922; 13,631 in 1923; 13,081 in 1924; and 11,715 in 1925. This condition has caused the agricultural college administrators much concern. In 1917, the total number of students who graduated from the agricultural colleges of the United States was 2,950 men and 74 women. In 1918, the number decreased to 1,845 men and 77 women, this great reduction being due no doubt to the entrance of many young men into the World War. In 1919, there were 2,225 men and 94 women graduates. In 1920, there were 2,530

men and 87 women graduates. In 1921, there were 2,612 men and 44 women graduates. In 1922, there were 2,176 men and 63 women graduates. In 1923, there were 2,747 men and 121 women graduates. In 1924, there were 2,521 men and 144 women graduates. In 1925, there were 2,604 men and 74 women graduates. This decrease in enrollment has been due no doubt for the most part to the prevailing agricultural depression throughout the country during the last few years. Although conditions on the farm are far from satisfactory, it is believed that they are improving. As agriculture returns to normal again, there should be an increase in the number of students attending agricultural colleges. As farming looks more encouraging, the young men naturally adapted to farming will probably not be attracted to other vocations as they have been during the agricultural depression. If conditions on the farm are favorable, farmers will be prosperous and optimistic, and a larger number will find it possible to send their sons to agricultural colleges.

To train students for scientific farming should not be the only aim of agricultural college courses, but it should certainly be one of the major aims. It should be to the interest of all that a reasonably large number of the agricultural-college graduates continue to enter the vocation of farming. Moreover, it would be harmful to agricultural colleges and to agricultural education in general if these institutions should fail to recommend agricultural college training for those desiring to enter upon scientific farming as a career.

In addition to the responsibility of providing vocational education to those who intend to engage in farming and other callings the agricultural colleges are agencies in a broad system of education for the promotion and improvement of agriculture and rural life. Therefore they are concerned with formulating programs of work that aim directly or indirectly to reach approximately 30,000,000 people residing on 6,500,000 farms and to furnish them with practical scientific knowledge regarding crop and animal production, pests and diseases, farm management, cooperative marketing, and the like.

Research In Agriculture And Related Sciences

? Through the aid of the Federal Government the cooperative arrangement between the Department of Agriculture and the several States in the plan of organization is the greatest movement yet inaugurated for the development of scientific research. The underlying principles of agricultural progress, whether on the farm, in the classroom, or in the field related to agriculture, had their inception largely in scientific research. A great service has been performed by the various experiment stations along the many lines of scientific investigations, the result of which have influenced directly or indirectly agricultural conditions and practices in all sections of our country.

These data reveal that on an average a little less than 6 per cent of the agricultural graduates engage in research work. The increased attention given to investigations indicated that there should be in the future a greater demand for workers in this field. The agricultural college should have as one of its aims the training of a certain number of students for scientific research work. Such students as show aptitude for this kind of work should be encouraged by colleges to prepare for services in this field. It is a well-known fact that one of the greatest obstacles in the early development of agricultural education

was the lack of scientific information to extend to the farmer, or to teach in the classroom. In more recent years much useful agricultural information has been accumulated which is being disseminated in all sections to aid in the solution of problems of the farm, the home, and in rural life in general.

Problems of the farm are becoming more numerous and complex each year, and there is a greater demand for the new knowledge developed through investigational channels that can be utilized effectively in the solution of these problems. With agricultural education occupying such a significant place in the system of education in the United States, it is very important that proper inducement be given to certain types of students to pursue graduate courses and to prepare for service in this field. To meet present-day needs the scientific staff of the experiment stations should be adequately trained for agricultural research work, and it is incumbent on the agricultural colleges to offer facilities and to share their responsibilities in training a number of students for research work. Scientific research holds a place of great importance in the development of agriculture, and larger opportunities await those trained for service in this field.

Teachers Of Agriculture, Related Science, And Extension Work

The preceding table showing the various pursuits in which agricultural graduates engage indicates that an average of about one-third of these graduates enter teaching and extension work. The teaching profession and extension work seem to hold interest for a large percentage of agricultural college graduates. It is evident that these institutions have large responsibilities in keeping a supply of classroom and extension teachers available for these pursuits. The land-grant institutions are best equipped to give training for agricultural and extension teachers, inasmuch as the subject-matter department and the teacher-training divisions are closely connected. It is only within the last decade that these institutions are devoting special attention to the training of agricultural teachers, the majority of whom are finding employment in vocational schools of secondary grade. It is equally important that special professional training be required of those who desire to become college teachers. It is also the duty of these institutions to devote more time to the preparation of agricultural extension teachers. The extension workers should be as well trained professionally as those who are to teach in schools or colleges.

There is no need for a radical change in the content of the curricula for this group of professional workers from that needed for training practical farmers. What is needed most is a thorough study involving the job analysis of the scientific content of the subjects to be taught. In making such analysis, close adherence to the vocational aspect of the subject-matter content as the basis for further procedure should be kept in mind. It is important that those desiring to prepare for teaching in the schools, colleges, or the extension service, should be required to select certain courses in the field of education, psychology, methods of teaching, public speaking, sociology, and the like.

Fortunately higher standards in professional improvement are now being maintained by the agricultural colleges. Many now require that the young college teacher must have had a certain amount of professional preparation with graduate credits before he is considered for appointment on the regular staff. Agricultural college teaching will improve only in proportion to the quality of professional training given the prospective teachers, and the organized effort promoted by the administrators to improve teachers in service. The increased demands for vocational teachers and extension workers in recent years indicate some of the numerous opportunities that await ambitious young men who desire to prepare for professional work along one of these lines.

Business Related To Agriculture

There are numerous opportunities before agricultural students who wish to prepare themselves for services in business fields related to agriculture. The average percentage of students entering this field, based on returns received, is 10.4.

The development of agriculture and the various business enterprises related to agriculture have opened many new lines of work for graduates of agricultural colleges. Many commercial and industrial concerns are seeking the services of young men with agricultural training. The fertilizer industries, the packing houses with agricultural interests, and the commercial fruit growers are finding it profitable to call on well-qualified agricultural college graduates. Large towns and city banks often employ agricultural specialists to represent the banks in dealing with and advising farmers who are customers of the banks. Some agricultural college graduates with ability and initiative are finding opportunity to enter a partnership business with landowners who are eager to furnish land or capital in exchange for initiative and agricultural training. Federal and joint-stock land banks often seek the services of men who know the value of soils and farm lands as appraisers. Various other opportunities are found for agriculturally trained men in soil and fertilizer plants, flour mills, dairy manufacturing concerns, landscape architecture, commercial poultry plants, the editing of farm papers, and so forth. Training for the various lines of pursuits mentioned should not necessarily involve organization of a special curricula; however, some adjustment in the selection of content of courses will probably be desirable. The technical preparation should be in the field of agriculture with specialization in so far as is possible in the particular field in which the student desires to work.

Miscellaneous Pursuits

Although these data show that about 75 per cent of the agricultural college graduates pursue professions or occupations related directly or indirectly to agriculture, 25½ per cent of these graduates appear to select careers in the so-called miscellaneous pursuits. This number is almost equal to the number that enter teaching and slightly less than the number that enter scientific farming. The broadly organized and highly specialized agricultural curricula of the land-grant institutions make it practical for students to obtain training that prepares them more or less for a wide range of pursuits including those related to agriculture or entirely outside the realm. As the industrial and commercial enterprises of the country continue to develop, it may be expected that a larger number of agricultural college graduates will seek employment in business enterprises related to agriculture and in the miscellaneous pursuits. According to

the data received the graduates who go into this group become bankers, real-estate dealers, salesmen, insurance agents, clerks, accountants, automobile salesman, and merchants. A smaller number enter the professions of law, medicine, preaching, and some become army officers.

Perhaps the time is not far distant when courses in vocational guidance and other tests will be ample to guide college students into specific channels with reference to careers for which they have aptitudes. But until that time it should be the aim of the agricultural curricula of the land-grant colleges to prepare young men for service in a wide range of pursuits.

Present And Future Demand For Agricultural College Trained Men

The two lines of agricultural work that have made great demand for agricultural college graduates during the last decade are cooperative extension and vocational education; the former comprises county agricultural agents and the latter teachers of agriculture in secondary schools. The latest available figures for the former up to June 30, 1927, show that the total number of extension workers is 5,055, of which about 3,719 are in the service of agriculture and agricultural clubs. According to W. A. Lloyd, Office of Cooperative Extension Work, United States Department of Agriculture, the average period of service of the county agent for 1925-26 was four years and two months. This indicates that each year there are new positions in agricultural extension open to graduates of agricultural institutions trained for extension work.

Data issued in the report of the Federal Board for Vocational Education give 3,276 full-time Smith-Hughes schools. In addition, there are supervisors, teacher trainers, and directors numbering probably 200 workers. As these two lines of agricultural work increase, a larger number of agricultural college graduates will be needed for service in these fields. There will continue to be a demand for college teachers as the number of students in these institutions increases. The gradual widening in scope of research work indicates a greater demand for workers in this field.

A larger proportion of these graduates are now entering occupations classified as agricultural business. Many business concerns in cities that deal in commodities that farmers buy and sell employ agricultural college graduates who have had practical farm experience and therefore understand many of the farmer's problems. An impetus has been given to this work in recent years by many of the colleges that have added courses in marketing and the business of agriculture to their curricula.

If the past is to be any guide for the future, the occupations and professions that will continue to interest the greater number of agricultural college graduates are farming, teaching, research, and extension work, with an increasing number engaged in business related to agriculture and the miscellaneous pursuits. A career in farming should hold an appeal to those graduates who have sufficient capital to invest in farm lands and equipment to utilize their services to the fullest extent. Perhaps a larger percentage of agricultural college graduates would prefer farming to other kinds of work, if at the time of graduation they had sufficient funds.

Opportunities For Service And Reward In Agricultural Pursuits

Does it pay to attend college to study agriculture? This is a question uppermost in the minds of many parents whose sons have completed their high-school courses and are contemplating college. Unless the demands for the services of agricultural college graduates are sufficient to induce young men to pursue these courses and the rewards commensurate to that offered graduates in other departments of the institution, many of them will decide to enter other college courses, or not to attend college at all. The various kinds of pursuits in which agricultural college graduates are working show conclusively the demands for the services of these students.

There are ample data to show that an agricultural college education is a profitable investment for the young man who desires to farm or enter professional work or any kind of work related directly or indirectly to agriculture.

Although in general much improvement has been made in agriculture, progress in this field has not kept pace with that in other lines of industry. This condition is due at least in part to the lack of proper educational opportunity for rural people and available facilities for extending training to a larger number of adults engaged in farming. Few lines of work offer greater opportunity for the utilization of business principles and scientific knowledge than that of agriculture. Various agricultural industries are making demands upon the agricultural colleges for leadership of different kinds. This is true with reference to the farm, the field of research, teaching, and the more than 150 other pursuits in which these graduates are now serving.

One of the greatest needs of to-day is a larger number of prosperous, happy, and intelligent families living on farms and earning their livelihood from the soil. The great challenge to the land-grant colleges is to supply efficient leadership for agricultural pursuits. It is obligatory upon these colleges to formulate a system of rural education in America that shall meet the needs of country life. It must be recognized that farming as a mode of life has a deeper significance than merely the production of raw products for food and clothing. Success in farming means profitable production and intelligent distribution of the products of the soil and opportunity to enjoy social and educational advantages. To be successful in farming as in other lines of business, one must have a trained mind, good judgment, and knowledge and skill in both production and distribution of agricultural commodities. The American farmer is rapidly acquiring this knowledge. Training as provided at the land-grant colleges is of tremendous advantage to those who expect to become successful farmers. Many of the agricultural college graduates with practical farm experience will find their greatest satisfaction and reward in the business of farming, while others will continue to render service in other kinds of agricultural pursuits.

Available data show that education is the best investment for the farmer.

A study was made in Georgia in 1925, in which records were obtained from 1,271 farmers, the results being based upon the yearly profits of these farmers. The results show that farmers without any schooling earned $240 per year; farmers with a common-school education earned $565 per year; farmers with a high-school

education earned $664 per year; farmers with a short-course agricultural education earned $895 per year; and farmers with an agricultural college education earned $1,254 per year. These figures show the tremendous advantage a person with an agricultural college education has over the person with no schooling, the advantage being more than 500 per cent in favor of the college education.

The Kansas State Agricultural College, Manhattan, made studies of 1,237 farms, the results of which show that farmers with a common-school education had an annual income of $422; those with a high-school education $545; those with some college training $859; and those who completed the agricultural college course $1,452. The college graduates earned more than three times as much as the farmers with a common-school education.

A survey made at the Pennsylvania State College, State College, of salaries of agricultural graduates showed at the completion of the survey in 1921 that the average salary of the graduates replying was $2,600. At that time 86 were receiving salaries ranging from $2,500 to $3,000; 78 from $5,000 to $4,000; 12 from $4,000 to $5,000; and 24 from $5,000 and above.

The United States Department of Agriculture reports a survey of three representative areas in Indiana, Illinois, and Iowa. It is shown that tenant farmers with a college education received an average labor income of $453 more a year than the man with a high-school education, and $979 more a year than the man with only a common-school education.

The New York State College of Agriculture, Ithaca, reports that farmers having more than a high-school education received $225 more a year than farmers with a high-school education and $529 a year more than farmers with a common-school education. They also report that 5 per cent of the farmers with a district-school education had labor incomes of more than $1,000; that 20 per cent of the farmers with high-school education had labor incomes of more than $1,000; and that 30 per cent of the farmers with more than a high-school education had labor incomes of more than $1,000

It is a well-known fact that agricultural graduates of land-grant colleges are filling positions of honor and trust as administrators and teachers in educational institutions and in various lines of occupations. The character of instruction offered at these institutions will continue to appeal to students who desire to prepare for scientific farming or professional careers in agriculture. Scientific agriculture is representative of the best in our national life. An intelligent application of such knowledge in the opportunities open to those trained is our cherished hope and the Nation's greatest asset.

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